545 Indian Mound
Wayzata, Minnesota 55391
(612) 473-4224

December 9, 1982

Mr. Mike Hansel
Regulatory and Compliance Section
Solid and Hazardous Waste Division
Minnesota Pollution Control Agency
1935 West County Road B2
Roseville, Minnesota 55113

Re: St. Louis Park Well Abandonment Program

Dear Mr. Hansel:

Enclosed herewith please find a copy of Progress Report No. 5 for the period November 1, 1982 to November 30, 1982, for work performed on the above referenced project.

If you have any questions and/or comments please feel free to contact me at 473-4224.

Sincerely,

EUGENE A. HICKOK AND ASSOCIATES

George Boyer

George W. Boyer, P.E.
Vice President

GWB/cml
Enclosure

cc: Mr. Paul Bitter, USEPA/Chicago
Mr. Richard Bartelt, USEPA/Chicago
Mr. Lowell Richie, MPCA
Mr. Richard Ferguson, MPCA
Mr. Steven Shakman, Attorney General/MPCA
Mr. Gary England, MnDOH
Mr. Richard Koppy, St. Louis Park

PROGRESS REPORT NO. 5
November 1, 1982 to November 30, 1982

INVESTIGATION OF FORMER REPUBLIC CREOSOTE SUPPLY WELL (USGS W23)

I. Intoduction

This Progress Report is intended to highlight the activities on the former Republic Creosote Well (USGS W23) and the Search and Inventory - St. Louis Park, for the period November 1, 1982 to November 30, 1982.

Daily work activity reports are prepared as the work progresses and are available for review at the job site as well as at the office of E. A. Hickok and Associates, Inc.

II. Highlights of Work Activities (November 1, 1982 to November 30, 1982)

A. Well W23

Work continued on Well W23 according to the revised work plan (October 11, 1982), Item 4. On November 1, 1982, the air line used for cleaning the well was removed and the well sounded. The well was then bailed from 705 feet to 710 feet at which point bentonite was encountered.

A test pump was installed with the pipe inlet set at 688.5 feet and a water sample secured. The sample looked cloudy, had a brownish color, and a noticable creosote odor. The analytical results of this sample (copy attached) clearly indicated contamination. The bore hole was televised to a depth of 710 feet and appeared vastly improved from the condition prior to the high pressure jetting procedure.

On November 17 and 18 the hole was grouted using bentonite, to a depth of 545 feet. Completion of the grouting operation corresponds to completion of the first 8 items of the October 11, 1982 revised work plan. (Copy attached)

The existing 4-inch casing and packer were removed on November 22, 1982, the well pumped to clean out any dirty water, and 4-inch casing re-installed to a depth of 252 feet. A "sand-lock" was provided between the 4-inch and 7-inch casings in an attempt to remove the 7-inch casing. Pulling and tapping on the 4-inch casing produced very little movement. The air line was inserted down the 4-inch in an attempt to losen the 7-inch casing, at which time the casings started to move.

As air was applied inside the 4-inch casing, water was forced out of the 10-inch casing indicating that there is movement of water outside the 7-inch casing. As the 7-inch casing was slowly being removed, the 10-inch casing also started to move upward along with the 7-inch casing. On November 24, 1982, 29.6 feet of 7-inch casing and 87.2 feet of 10-inch casing were removed.

Inspection of the 7 and 10-inch casings revealed that the 7-inch casing was ripped apart and the 10-inch casing separated at a joint. The well was televised on November 30, 1982, and revealed the following:

Depth *	
0-69'	12" casing
88'	top of 10" casing
261'	bottom of 10" casing
266'	top of 7" casing
410'	bottom of 7" casing ?

* All measurements were taken from the top of the 12-inch casing which is approximately 2.5 feet above grade.

B. Search and Inventory

This portion of the project is completed. A technical memorandum (preliminary) has been completed.

III Anticipated Work for the Period December 1, 1982 to December 31, 1982

Work will be suspended on or around December 10, 1982, because of lack of funds.

IV. Expenditures

Well W23

May and June	$ 19,392.43
July	34,523.68
August	18,788.13
September	2,843.89
October	16,439.65
November	53,979.58
	$145,967.36

Search and Inventory

May and June	$ 5,952.48
July	3,518.59
August	5,184.65
September	10,887.71
October	4,788.49
November	1,610.55
	$ 31,942.47

Extra Work - Reilly Tar and Chemical

	Renner	Hickok
August	$6,352.00	$1,668.00
September	-0-	2,449.64
October	-0-	-0-
November	-0-	-0-
	$6,352.00	$4,137.64

Revised Work Plan
Well 23 (Reilly Deep Well)
October 11, 1982

1. Grout hole to top of Eau Claire using bentonite (Renners, Convery and Nye to confer on technique).

2. Pull four inch casing, clean/repair packers, and reinstall, with one packer at the bottom of the four inch in the St. Lawrence formation (approximately 500 feet down; Hickok to check television and caliper logs for satisfactory location) and one packer in the basal St. Peter (within the seven inch casing).

3. Perform 12-24 hour pump test on FIG, taking samples at 0 and 12 (or 24) hours, and observing water levels inside the the four inch and in the anular space. If water levels fluctuate significantly reset, reposition or adjust packers so that there is no hydraulic connection and no down hole flow.

4. Clean the sides of the FIG, using air and foam, including use of air "jets." Measure water flow from the well, and measure water levels during cleaning. Make sure all foam has been removed from well.

5. Televise and caliper the hole. If foam/contamination present, repeat step 4 until formation walls are visually clean.

6. Perform 12-24 hour pump test on FIG as in step 3.

7. Analyze sample immediately. If samples are clean (i.e. below method detection or very low (1-2 ng/l) concentration, proceed to step 8. If samples are not clean - setup conference call.

8. Grout FIG up to bottom of St. Lawrence using bentonite. 11-8

9. Pull four inch casing and packers.

10. Grout to top of St. Lawrence using bentonite.

11. Hang eight inch casing on twelve inch casing and extend through basal St. Peter (just above seven inch casing) to prevent cave-in of hole and reduce down hole flow.

12. Remove seven inch casing using inside pipe grab and jarring upwards, starting at bottom of casing.

13. Televise and recaliper hole.

14. Reinstall four inch (or larger casing) with packer in basal St. Peter to prevent down hole flow.

15. Test pump Jordan aquifer using packer to prevent down hole flow from PdC.

16. Clean sidewall of hole in Jordan as was done for FIG (Steps 3-7).

17. Grout to top of Jordan using bentonite.

18. Meet to discuss strategy for cleaning PdC.

Revised Work Plan
November 22, 1982
Well 23

STATUS

November 19, 1982 — Steps 1-8 of October 11, 1982 work plan have been completed.

Hole is backfilled with bentonite to 545 ft. (Franconia sandstone)

PLAN

#9	Pull 4" casing and packers
-	Pump inside 10" casing to clean water
12	Remove 7" casing
11	Hang 8" casing on 12" casing and extend through basal St. Peter (just above 7" casing) to prevent cave-in of hole and reduce down hole flow
--	Caliper hole
15	Test pump Jordan aquifer using packer to prevent down hole flow from Prairie du Chien
13	Televise hole
16	Clean sidewall of hole in Jordan as was done for FIG
-	Test pump Jordan aquifer
-	Televise hole
17	Grout to top of Jordan using bentonite
18	Meet to discuss strategy for cleaning P and C

The University of Iowa

Iowa City, Iowa 52242

University Hygienic Laboratory

(319) 353 5990

18 November 1982

E.A. Hickok and Associates
545 Indian Mound
Wayzata, MN 55391

Attn: Mr. George Boyer

Dear George;

The attached results are the ones reported to you on 12 November 1982 by telephone.

Sincerely,

Armand F. Lange, Ph.D.

Armand F. Lange, Ph.D.
Chief, Organic Analytical Division

lm

cc: Dr. Splinter
Dr. Hahne
Ms. Cain
Mr. Brewer
File

EUGENE A HICKOK IDENTIFICATION Mass	Compound	5122 OW23 11/4/82 Time 0 FIG UHL# 2-4158 µg/L	5123 OW23 11/5/82 Time 22 IG UHL# 2-4159 µg/L	Reagent Blank µg/sample
117	2,3-Dihydroindene	15	33	<1
115	Indene	8	75	<1
128	Naphthalene	<1*	480	<1
134	Benzo[b]thiophene	2	32	<1
129	Quinoline	<5	<5	<1
142	2-Methylnaphthalene	3	100	<1
117	Indole	<1	<1	<1
142	1-Methylnaphthalene	66	80	<1
154	1,1'Biphenyl	29	30	<1
152	Acenaphthylene	18	33	<1
154	Acenaphthene	54	68	<1
166	Fluorene	100	65	<1
178	Phenanthrene	180	100	<1
178	Anthracene	65	14	<1
179	Acridine	4	5	<1
179	Phenanthridine	1	<1*	<1
167	Carbazole	9	27	<1
202	Fluoranthene	150	23	<1
202	Pyrene	120	19	<1
228	Benz[a]anthracene	14	2	<1
228	Chrysene	15	1	<1
252	Benzo[b]fluoranthene	9	<1*	<1
252	Benzo[k]fluoranthene	10	<1*	<1
252	Benzo[e]pyrene	10	<1*	<1
252	Benzo[a]pyrene	18	<1*	<1
252	Perylene	2	<1*	<1
276	Indeno[1,2,3 CD]pyrene	4	<1*	<1
278	Dibenz[a,h]anthracene	4	<1*	<1
276	Benzo[g,h,i]perylene	5	<1*	<1

*Compound present, but below quantitation limit